Dec. 13, 1949 E. C. ELSNER 2,490,862

RELEASE LATCH FOR BUCKLES

Filed July 10, 1948

Fig. 1.

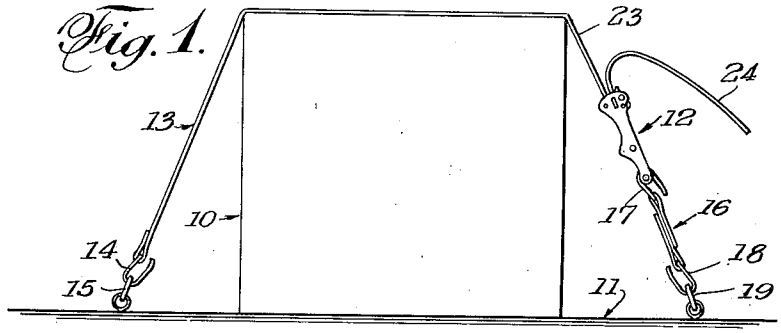


Fig. 2.

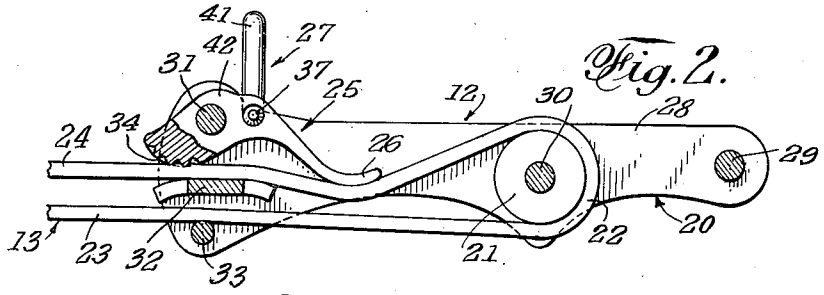


Fig. 3.

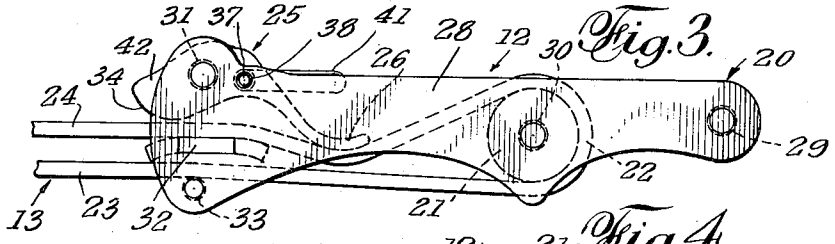


Fig. 4.

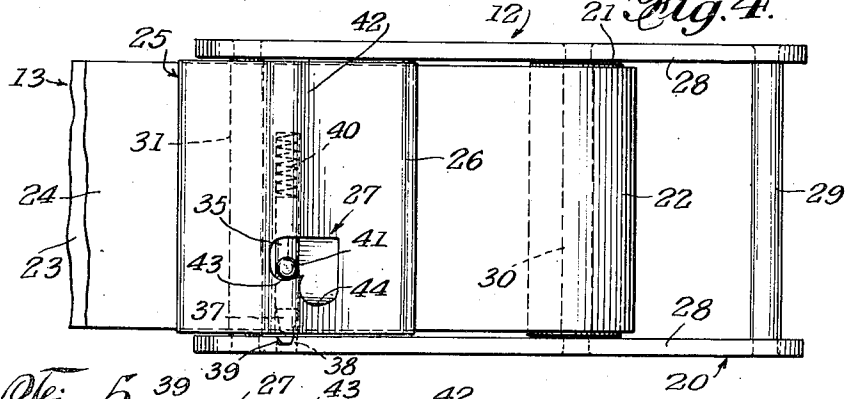
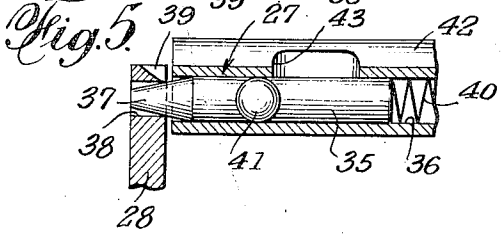


Fig. 5.



Inventor

EDWIN C. ELSNER

By C. G. Stratton

Attorney

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RELEASE LATCH FOR BUCKLES

Edwin C. Elsner, North Hollywood, Calif., assignor to C. J. W. Corporation, North Hollywood, Calif., a corporation of California

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5 Claims. (Cl. 24—133)

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This invention relates to strap buckles and deals more particularly with release latch means for the same. This application is a continuation-in-part of my pending application entitled Quick release automatic strap buckle, Ser. No. 767,875, and filed August 11, 1947.

An object of the present invention is to provide a buckle for connecting the ends of a strap or the ends of two straps fastened to a common member that embodies cam-wedge means for gripping one strap end and includes improved release means for said cam-wedge means, facilitating slackening off on said strap end.

The invention also has for its objects to provide such means that are positive in operation, convenient in use, easily installed in a working position and easily disconnected therefrom, economical of manufacture, relatively simple, and of general superiority and serviceability.

The invention also comprises novel details of construction and novel combinations and arrangements of parts, which will more fully appear in the course of the following description. However, the drawings merely show and the following description merely describes one embodiment of the present invention, which is given by way of illustration or example only.

Fig. 1 is a side elevational view showing the present buckle in a preferred application.

Fig. 2 is an enlarged longitudinal sectional view thereof in which the cam-wedge means is released, the same being the normal applied condition of the buckle.

Fig. 3 is a side elevational view of the buckle showing the cam-wedge means latched or locked to facilitate slackening off on the strap end connected thereto.

Fig. 4 is a top plan view of the buckle.

Fig. 5 is a further enlarged fragmentary sectional view of the latch means in latched position.

In the mentioned pending application, the buckle is disclosed as connecting the ends of a strap. In Fig. 1 of the present application, the buckle, while adapted to be used as in the earlier application, may also be employed for tying down an article such as a crate 10 to a floor or deck 11. In this latter case, the buckle 12 is connected to a strap 13 that is trained over the article 10 and said strap by means of a hook 14 is engaged with a ring or eye 15 fixed to said floor. A connector strap 16 having a hook 17 at one end for separable connection to the buckle and a hook 18 at the other for hooking engagement with a second ring or eye 19, completes the article holding association of elements. By omitting the connector strap 16, hook 14 can be directly engaged with the buckle to provide an article-encompassing arrangement.

The buckle 12 that is illustrated comprises, generally, a frame 20; a roller 21 mounted transversely of the frame at an intermediate part thereof for a loop 22 of the strap 13 trained thereabout to provide said strap with a bight 23 that connects to ring or eye 15, and a free end 24; cam-wedge means 25 for gripping the strap 12 to maintain the tension thereof, the latter means embodying a curved extension 26 engaged with said strap to urge the cam-wedge means into strap-gripping position; and latch means 27 for inter-engaging the cam-wedge means and frame 20 for latching said means in a position that permits slackening off of strap 13 in the buckle.

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The frame 20 comprises essentially, a pair of sides 28 that are connected at one end by a rod 29 that connects either with hook 17 or hook 14, and is also connected by a pivot rod 30 for roller 21, a pivot rod 31 for the means 25, a plate 32 that cooperates with the latter means to grip strap 13, and a rod 33 between which and said plate the bight extends.

The cam-wedge means 25 comprises, in addition to curved extension 26, a curved strap-gripping face 34 that is on the opposite side of the pivot rod 31 from said extension. Rather than conventional knurling, said face 34 is quite deeply indented to provide a plurality of rib-defined seats or cavities that have keying or interlocking engagement with the strap, the latter being of the woven type and having protuberances that fall into said seats or cavities.

In use, take-up on strap 13 is effected by a pull on the free end 24, the same freely sliding between the cam-wedge face 34 and plate 32. Release of said pull permits the force transmitted to extension 26, by said strap end 24, between roller 21 and plate 34 to so rock means 25 that the face 34 thereof effectively grips the strap against any pull of bight 23. By pushing down on extension 26, the cam-wedge means 25 is rocked, as in Fig. 3, to release said grip and the pull on bight 23 is effective to slacken the strap. However, upon release of the extension, the pull on the strap will again lift the same to cause means 25 to re-grip the strap. Accordingly, said extension would require constant depression so that the bight 23 can be increased to a desired length.

Latch means 27 is provided for holding extension depressed when the same is desired and said latch means is designed to be ineffective during normal use of the buckle. Said means comprises a bolt 35 slidably fitted in an end bore 36 formed in cam-wedge member 42. Said bolt is provided with a tapered end 37 that has selective engagement in a hole 38 in one side 28 and in a notch 39 immediately thereadjacent. A spring 40 behind the bolt urges its tapered end toward said hole and notch.

A transverse extension handle 41 is provided on the bolt 35 intermediate its ends and said mem-

ber 42, shoulders 43 and 44, the first to receive the thrust of said handle when the same is substantially upright and the other to receive the thrust thereof when rocked to a substantially horizontal position. Shoulder 43 retains bolt 35 retracted and out of engagement with hole 38 or notch 39. Shoulder 44 allows for projection of said bolt by the spring but retains the same captive to obviate loss thereof.

When bolt 35 is held retracted, the cam-wedge means 25 functions in the manner above-stated and depression of extension 26 will effect release of the strap. Release of said extension will automatically restore means 25 to strap-gripping condition. With the strap thus gripped, the handle 41 is flipped off shoulder 43 and spring 40 will project bolt 35 into notch 39 so that the same extends at least, in part, above the upper edge of side plate 28. A safety lock is thus effected that prevents inadvertent release of the strap should extension 26 be struck or inadvertently pushed. Release can be effected only by withdrawal of bolt 35. The same may be manually accomplished or if desired, the taper of bolt end 37 and that of notch 39 may be so arranged and proportioned that a strong push on extension 26 will effect a cam-wedging withdrawal of the bolt, the latter then entering hole 38 to hold the extension depressed and the strap released for free slacking off of said strap.

The tapered bolt end 37 when in notch 39, also comprises safety means that obviates accidental depression of extension 26, it being necessary to overcome the force of spring 40 before depression of the extension can be effected.

The strap, hook and buckle arrangement shown in Fig. 1 may, of course, be varied, the present application being primarily concerned with the normal release latch for the cam-wedge means.

While I have illustrated and described what I now regard as the preferred embodiment of my invention, the construction is, of course, subject to modification without departing from the spirit and scope of my invention. I, therefore, do not wish to restrict myself to the particular form of construction illustrated and described, but desire to avail myself of all modifications that may fall within the scope of the appended claims.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. A strap buckle comprising a frame having sides, cam-wedge means pivotally carried between said sides for gripping a strap, said cam-wedge means having an extension normally engaged with the strap and held thereby in gripping position, said extension being adapted to be manually depressed to move the cam-wedge means to non-gripping position, and latch means carried by the cam-wedge means for releasably locking said cam-wedge means to one of the frame sides in non-gripping position, said latch means comprising a spring-urged bolt directed toward said frame side, a handle on said bolt, and a shoulder on the cam-wedge means for engaging and holding said bolt retracted, said handle and bolt being manually rotatable to disengage the former from the shoulder whereby the latter engages said frame side.

2. In a strap buckle, a frame having sides, a strap-gripping member pivoted between the sides, there being an end bore in said member and a hole and a notch in one of said sides for selective alignment with said bore, a strap-engaging extension on said member for rocking the same into strap-gripping position, a spring-urged bolt in said bore and having an end directed toward said hole and notch, said bolt end residing in the notch when the strap-gripping member is positioned to grip a strap, and said bolt end, upon manual depression of said extension to move the strap-gripping member to non-gripping position, automatically entering said hole to hold the latter member in said non-gripping position.

3. In a strap buckle, a frame having sides, a strap-gripping member pivoted between the sides, there being an end bore in said member and a hole and a notch in one of said sides for selective alignment with said bore, a strap-engaging extension on said member for rocking the same into strap-gripping position, a spring-urged bolt in said bore and having an end directed toward said hole and notch, said bolt end residing in the notch when the strap-gripping member is positioned to grip a strap, said bolt end, upon manual depression of said extension to move the strap-gripping member to non-gripping position, automatically entering said hole to hold the latter member in said non-gripping position, and a shoulder on the strap-gripping member adapted to hold said bolt retracted and from entering said hole and notch.

4. In a strap buckle, a frame having sides, a strap-gripping member pivoted between the sides, there being an end bore in said member and a hole and a notch in one of said sides for selective alignment with said bore, a strap-engaging extension on said member for rocking the same into strap-gripping position, a spring-urged bolt in said bore and having an end directed toward said hole and notch, said bolt end residing in the notch when the strap-gripping member is positioned to grip a strap, said bolt end, upon manual depression of said extension to move the strap-gripping member to non-gripping position, automatically entering said hole to hold the latter member in said non-gripping position, and a shoulder on the strap-gripping member adapted to hold said bolt retracted and from entering said hole and notch, a transverse extension on said bolt and comprising a manipulating handle therefor being provided for engaging said shoulder.

5. In a strap buckle, a frame side, a pivoted strap-gripping member, and a projectible element carried by the latter member adapted, when projected, to engage said frame side, to lock the strap-gripping member against movement to free the strap, said frame side having a hole therein and said element, after retraction and subsequent movement of the strap-gripping member to effect release of the strap, being automatically projectible into said hole to hold said member in strap-releasing position.

EDWIN C. ELSNER.

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The following references are of record in the file of this patent:

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